



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

REFLUX ESOPHAGITIS

AN OVERVIEW



Professor Magdy Hamed

Introduction

The esophagus is a flattened muscular tube of 18 to 26 cm from the upper to the lower sphincter. Between swallows the esophagus is collapsed but the lumen can distend to approximately 2 cm in the anterior-posterior dimension and up to 3 cm laterally to accommodate a swallowed bolus.

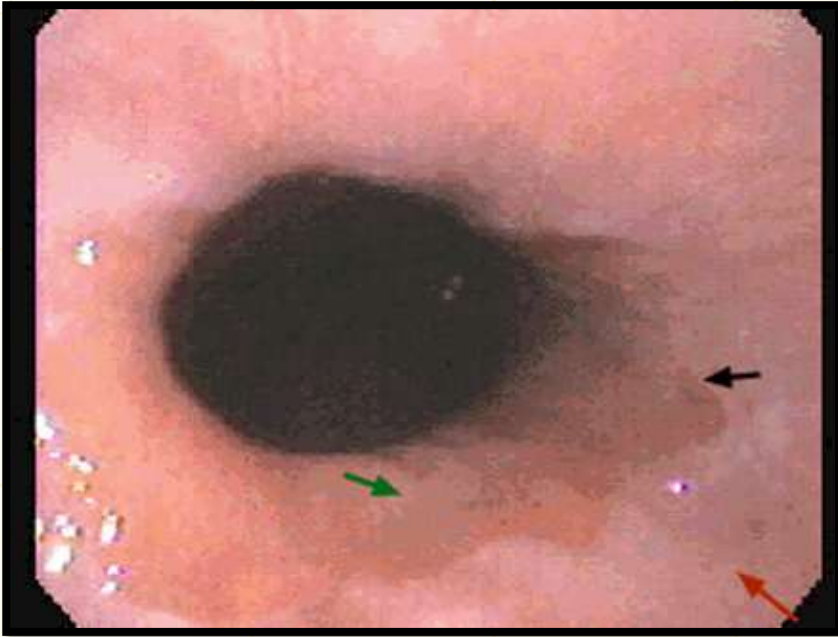


Normal Esophagus

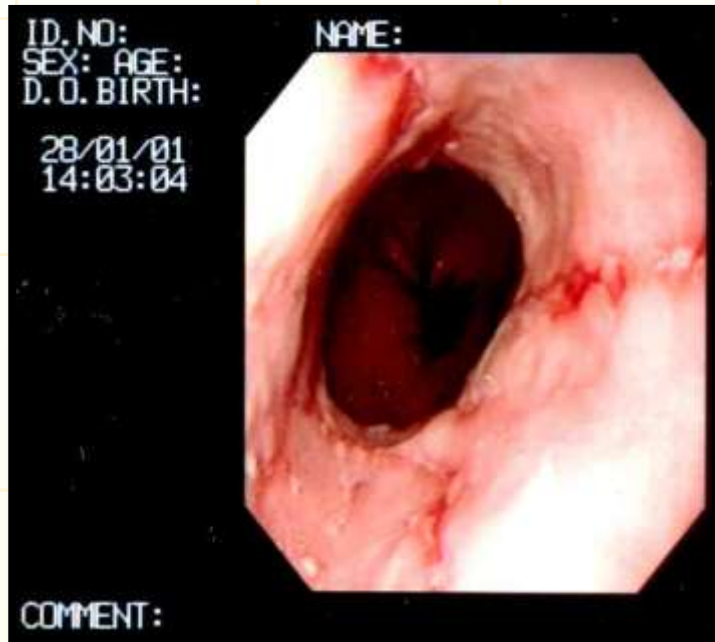
Endoscopy



Professor Magdy Hamed



- Black arrow marks the squamo-columnar junction(Z-Line).
- Note that the Z-Line while undulating has smooth contours.
- Green arrow marks gastric columnar epithelium above the sphincter which is seen as a round black hole.
- Red arrow marks the pink white esophageal squamous epithelium.



Not all esophagitis are GERD

Causes

Reflux esophagitis.

Infections.

Medications.

Radiation therapy.

Systemic disease.

Trauma(Chemicals & Endo.).

Eosinophilic esophagitis.

The Montréal definition of GERD

"GERD is a condition which develops when the reflux of stomach content causes troublesome symptoms and/or complications"

Esophageal Syndromes

Symptomatic Syndromes

- *Typical Reflux Syndrome*
- *Reflux Chest Pain Syndrome*

Syndromes with Esophageal Injury

- *Reflux Esophagitis*
- *Reflux Stricture*
- *Barrett's Esophagus*
- *Adenocarcinoma*

Extra-esophageal Syndromes

Established Associations

- *Reflux Cough*
- *Reflux Laryngitis*
- *Reflux Asthma*
- *Reflux Dental Eros.*

Proposed Associations

- *Pharyngitis*
- *Sinusitis*
- *Idiopathic Pulmonary Fibrosis*
- *Recurrent Otitis Media*

Epidemiology

Gastroesophageal reflux disease affects about 20% of adults, who reported at least weekly episodes of heartburn, and up to 10% complain of daily symptoms.

Although most patients have mild disease, esophageal mucosal damage (reflux esophagitis) develops in up to 50%.

Pathophysiology

- Transient LOS relaxations.
- Low resting LOS tone which fails to increase when the patient is lying flat, as occurs normally.
- The LOS tone fails to increase when intra-abdominal pressure is increased by tight clothing or pregnancy.
- Increased esophageal mucosal sensitivity to acid.

Pathophysiology

- Poor esophageal peristalsis reduces esophageal clearance of acid. The reduced acid clearance is exacerbated with a hiatus hernia, owing to trapping of acid within the hernial sac.
- A large hiatus hernia can impair the 'pinchcock' mechanism of the crural diaphragm.
- Delayed gastric emptying occurs, which may increase the chance of reflux.
- Prolonged episodes of gastro-esophageal reflux occurring mainly at night and post-prandially.

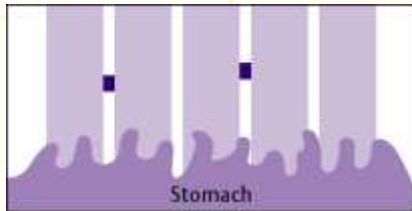
Conditions associated with GERD

- **Pregnancy and obesity.**
- **Fat, chocolate, coffee or alcohol ingestion.**
- **Large meals.**
- **Cigarette smoking & alcohol.**
- **Drugs: e.g., antimuscarinic, nitrates.**
- **Systemic sclerosis.**
- **After treatment for achalasia.**
- **Hiatus hernia.**

The LA classification system

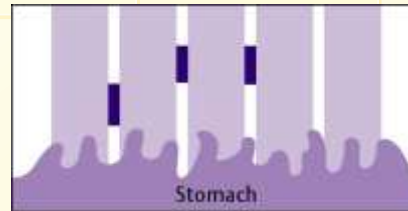
for the endoscopic assessment of reflux esophagitis

Grade A



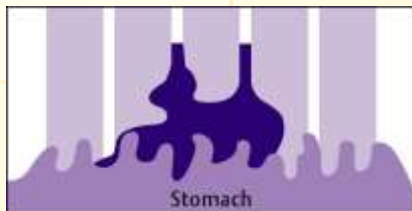
One (or more) mucosal break, no longer than 5 mm, that does not extend between the tops of two mucosal folds

Grade B



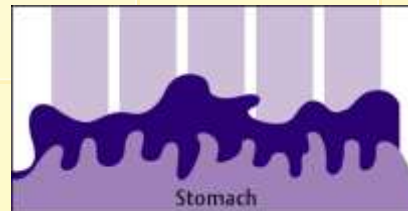
One (or more) mucosal break, more than 5 mm long, that does not extend between the tops of two mucosal folds

Grade C



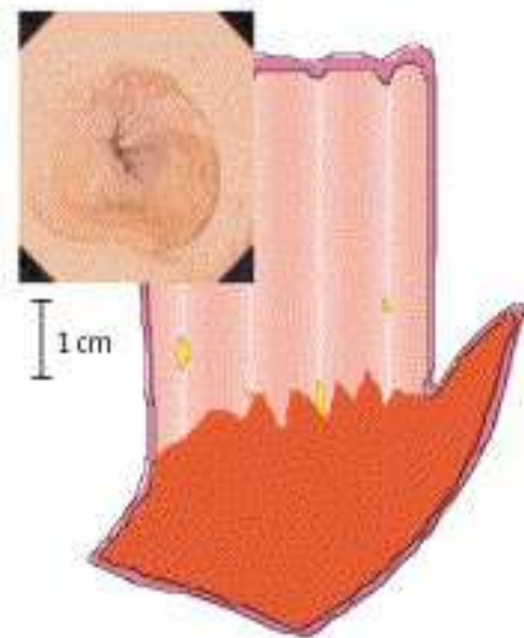
One (or more) mucosal break that is continuous between the tops of two or more mucosal folds, but which involves less than 75% of the circumference

Grade D



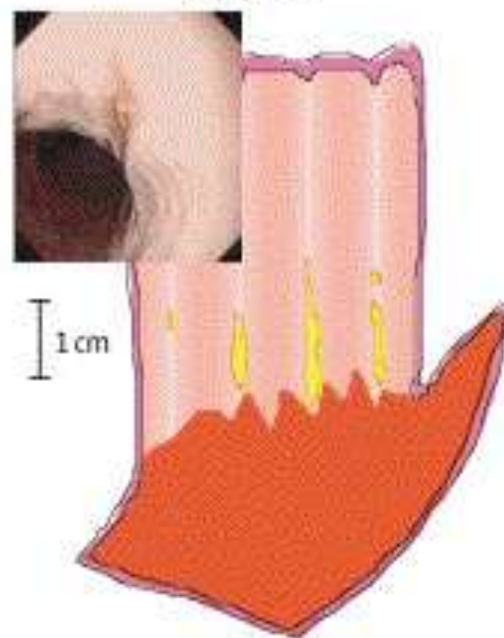
One (or more) mucosal break that involves at least 75% of the esophageal circumference

LA grade A



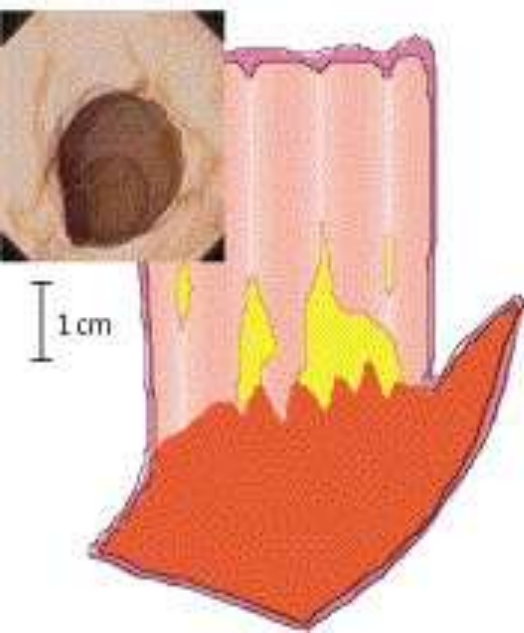
One (or more) mucosal break no longer than 5 mm, which does not extend between the tops of two mucosal folds

LA grade B



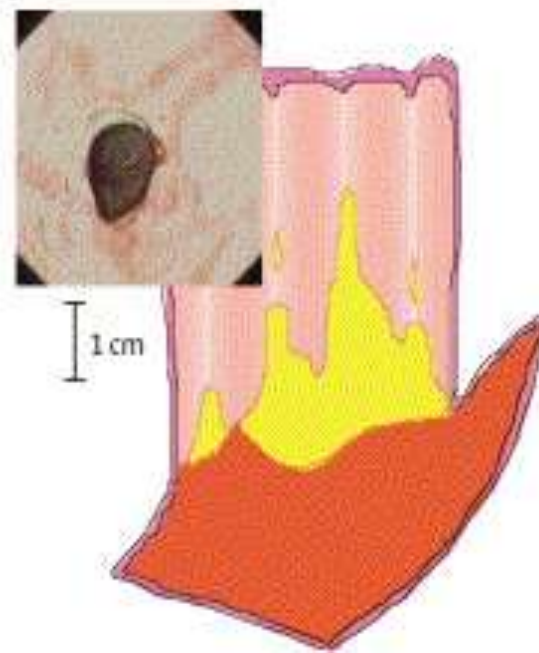
One (or more) mucosal break more than 5 mm long, which does not extend between the tops of two mucosal folds

LA grade C



One (or more) mucosal break that is continuous between the tops of two or more mucosal folds, but which involves less than 75% of the circumference

LA grade D



One (or more) mucosal break which involves at least 75% of the oesophageal circumference

Complications of reflux esophagitis

- **Hemorrhage (7 – 18 % of esophagitis).**
- **Peptic strictures.**
- **Barrett's esophagus/dysplasia.**
- **Adenocarcinoma.**
- **Perforations (rare).**

Alarm features for GERD

- Dysphagia.
- Odynophagia.
- Bleeding.
- Anemia.
- Weight loss.
- Fever.

How can GERD be diagnosed?

“The typical reflux syndrome can be diagnosed on the basis of characteristic symptoms, without diagnostic testing”.

Signs and symptoms

“The typical reflux syndrome can be diagnosed on the basis of characteristic symptoms, without diagnostic testing”.

Signs and symptoms

The most-common symptoms of GERD are:

- Heartburn.**
- Regurgitation.**
- Trouble swallowing (dysphagia).**

Signs and symptoms

Less-common symptoms include:

- **Pain with swallowing (odynophagia).**
- **Excessive salivation (this is common during heartburn, as saliva is generally slightly basic and is the body's natural response to heartburn, acting similarly to an antacid).**
- **Nausea.**
- **Chest pain.**

Manifestations of complications

Reflux esophagitis:

Necrosis of esophageal epithelium causing ulcers near the junction of the stomach and esophagus.

Esophageal strictures:

The persistent narrowing of the esophagus caused by reflux-induced inflammation.

Barrett's esophagus:

Metaplasia (changes of the epithelial cells from squamous to columnar epithelium) of the distal esophagus.

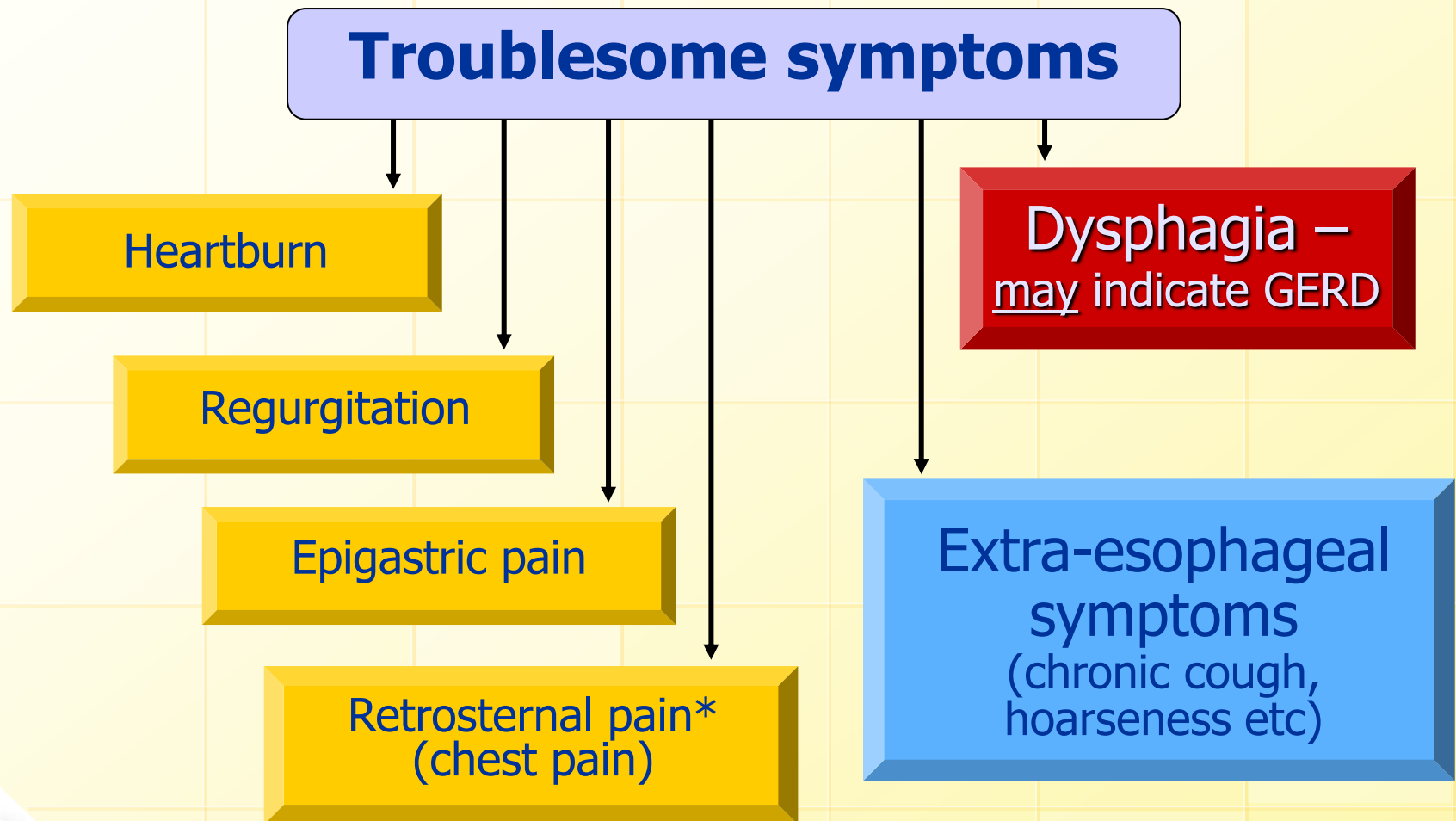
Esophageal adenocarcinoma:

A rare form of cancer.

Extra-esophageal manifestations

- **Chronic cough.**
- **Laryngitis (hoarseness, throat clearing).**
- **Asthma.**
- **Erosion of dental enamel.**
- **Dentine hypersensitivity.**
- **Sinusitis and damaged teeth.**

GERD can be diagnosed based on symptoms alone



*When cardiac causes have been excluded

Common symptoms of Pediatric Reflux

- Irritability and pain, Constant or sudden crying or “colic” like symptoms.
- Poor sleep habits typically with arching their necks and back during or after feeding.
- Excessive vomiting.
- Frequent hiccups.
- Excessive dribbling or running nose.
- Swallowing problems, gagging and choking.
- Frequent ear infections or sinus congestion.
- Refusing feeds or frequent feeds for comfort.
- Night time coughing, extreme cases of acid reflux can cause apnoea and respiratory problems such as asthma, bronchitis and pneumonia if stomach contents are inhaled.
- Bad breath – smelling acidic.

Investigations of GERD

Use Of Endoscopy.

Ambulatory PH monitoring.

Esoph. Manometry.

Use Of Endoscopy

Endoscopy at presentation should be considered in patients:

- **With symptoms suggesting complicated disease.**
- **At risk for Barrett's esophagus.**
- **Who (with their physicians) feel early endoscopy to be appropriate:**

Presence of Warning signs.

Long Duration of symptoms.

Cancer phobia.

Ambulatory PH monitoring

Ambulatory monitoring of the esophagus Helps to confirm GERD in patients:

- With persistent symptoms (both typical & atypical) without evidence of mucosal damage especially when a trial of acid suppression has failed.**
- It may also be used to monitor the control of reflux in pts. with continued symptoms on therapy.**

Esophageal Impedance-pH Monitoring

What is an esophageal impedance-pH study?

An ambulatory esophageal 24 hour pH study is an outpatient test that measures the amount of acid or non-acid reflux of stomach contents into the esophagus.

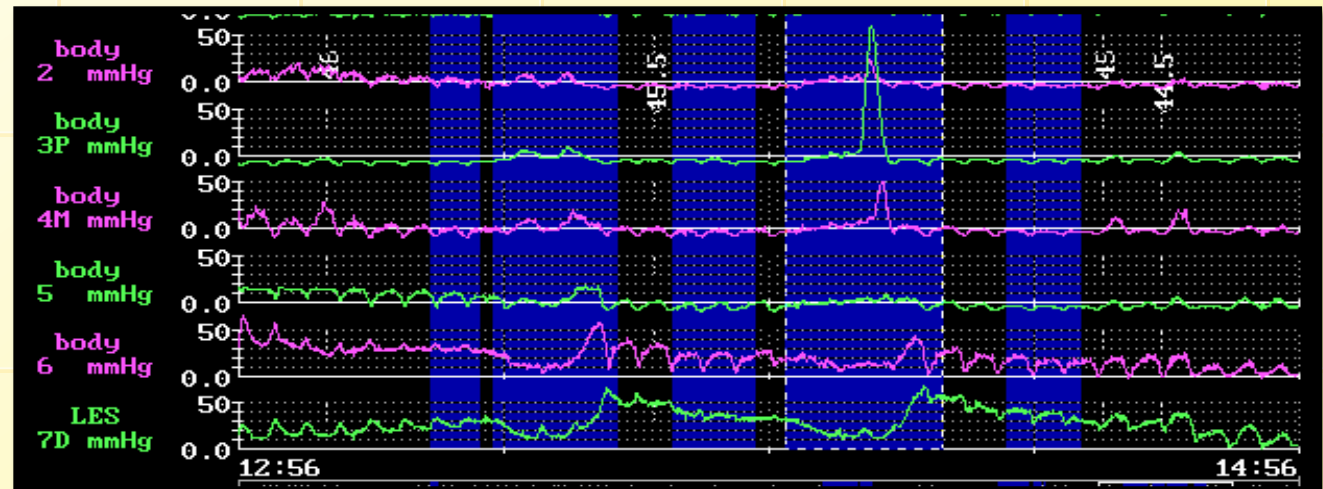
The sensors placed in the esophagus measure:

- Acid concentration which corresponds to “acidic” reflux and
- Impedance which corresponds to “nonacid” reflux.

Esophageal Manometry

Esophageal manometry may be used:

- To ensure accurate placement of ambulatory monitoring probes.
- Prior to anti-reflux surgery.



Management of GERD

In the majority of patients with uncomplicated disease, empiric treatment is initiated based on a compatible history without the need for further confirmatory studies.

Patients not responding and those with suspected complications undergo further evaluation with upper endoscopy or esophageal pH recording.

Treatment modalities

- **Lifestyle Modification.**
- **Patient Directed therapy.**
- **Acid Suppression.**
- **Pro-kinetic Therapy.**
- **Maintenance therapy.**
- **Endoscopic Treatment.**
- **Surgery.**

Empirical Therapy

If the patient's history is typical for uncomplicated GERD, an initial trial of empirical therapy (including lifestyle modification) is appropriate.

Lifestyle modifications

Lifestyle modification may benefit many patients with GERD, although these changes alone are unlikely to control symptoms in the majority of patients.

They are of limited benefits.

Lifestyle modifications

- **Weight control.**
- **Reduction of alcohol, tobacco and coffins intake.**
- **Avoidance of laying down within 2 hours of eating.**
- **Elevating the head of the bed.**
- **Avoidance of foods that trigger symptoms:**
 - **Spices.**
 - **Peppermint.**
 - **Chocolate.**
 - **Citrus juices.**

Patient Directed therapy

Antacids and over-the-counter (OTC) acid suppressants are options for pts. directed therapy for heartburn and regurgitation.

But When

- Symptoms persist
- Continuous therapy is required
- Alarm symptoms or signs develop

The pt. should have additional evaluation and treatment.

Acid Suppression

***Acid supp.* is the mainstay of therapy for GERD. PPIs provide the most rapid symptomatic relief and heal esophagitis in the highest percentage of pts. Although less effective than PPIs.**

Histamine 2-receptor blockers given in divided doses may be effective in some pts. with less severe GERD.

Acid Suppression

- PPIs are superior to H2 blockers for the reduction of heartburn and healing of esophagitis.
- The effectiveness of PPIs and H2 blockers for the healing of esophagitis is proportional to their ability to reduce intragastric acidity.
- Initial therapy for GERD symptoms should be a once-daily PPI when symptoms are mild and infrequent (fewer than three times per week).
- The symptomatic response to an initial course of antisecretory therapy should be assessed at 4--8 weeks.
- Twice-daily PPI therapy is not generally required as initial therapy for typical GERD symptoms.

Acid Suppression

- **Twice-daily, standard dose PPI therapy may be used for patients who have severe symptoms despite standard once-daily PPI therapy.**
- **Twice-daily, standard dose PPI therapy may be used for patients who have severe esophagitis.**

Acid Suppression

Reasons for PPIs failure

- Oral bioavailability of PPIs varies considerably and may be decreased further when they are taken along with antacids or H_2RAs .
- PPIs are least effective during periods of parietal cell quiescence and have a lesser effect on acid suppression when taken at times other than just before a meal.
- Hypersecretors may show a diminished effect with PPIs.
- Genetic variations in hepatic cytochrome P 450 2C19 may result in more rapid metabolism of PPI, thereby limiting potency.

Pro-kinetic Therapy

Pro-kinetic agents may be used in selected pts., especially as an adjunct to acid suppression.

Maintenance Therapy

- **An individual whose reflux symptoms have responded well to standard dose PPI therapy may discontinue medication to confirm the need for ongoing therapy.**
- **Long-term maintenance therapy should be given at the lowest dose and frequency that is sufficient to achieve optimal control of the patient's.**

Maintenance Therapy

- **On-demand acid suppression therapy is a reasonable long-term medical strategy for selected patients with GERD. Long-term PPI therapy has not been associated with any clinically significant adverse events.**
- **Prokinetic or promotility agents are not recommended, either alone or in conjunction with antisecretory agents, for the routine long-term treatment of GERD.**

Maintenance Therapy

Supplementary night time H2RA therapy is not generally recommended for individuals who have responded incompletely or have failed to respond to standard dose or double dose PPI therapy of adequate duration.

Endoscopic Treatment

- **Endoscopic Gastric Fundoplication.**
- **Single Full thickness plication (Not FDA approved).**
- **Thermal Coagulation (RF) or Laser.**
- **Polymer Injection.**
- **Stratta (Mucosectomy).**

Anti-reflux surgery

Fundoplication either:

Open surgery

Or

Laparoscopic:

Nissen 360° fundoplication.

Toupet 270° fundoplication.

Laparoscopic Anti-reflux surgery

- **Safe.**
- **Effective.**
- **Compare favorably to continuous PPIs.**

But

Recurrence. Rate

5% - 20%

Side effects

10% - 50%

Reoperation

2% - 8%

PPIs need

30%



Non-Erosive Reflux Disease

NERD



Professor Magdy Hamed

Non-Erosive Reflux Disease

NERD

- **Nonerosive reflux disease (NERD) is the most common phenotypic presentation of gastroesophageal reflux disease (GERD).**
- **Although definition of NERD remains an area of controversy, many studies continue to define these patients as having classic symptoms of GERD in the absence of esophageal mucosal injury.**

Non-Erosive Reflux Disease

NERD

- As compared with patients with erosive esophagitis, NERD patients tend to be younger, female and lack hiatal hernia.
- NERD patients represent a complex, heterogeneous group of patients. Functional heartburn patients account for approximately half of the NERD group.

Non-Erosive Reflux Disease

NERD

- This functional heartburn subgroup is likely responsible for the low symptom response rate of NERD patients to proton pump inhibitors (PPIs) and the rising clinical dilemma in gastrointestinal (GI) practice PPI failure.

Take-home messages

- ✓ The prevalence of GERD is high and increasing.
- ✓ GERD symptoms may disrupt sleep and social activities and reduce the sufferer's ability to work effectively.
- ✓ GERD may present with typical symptoms such as heartburn or atypical, extra-esophageal syndromes such as reflux asthma.
- ✓ Use of a reflux questionnaire or a 'PPI test' may help in the diagnosis of GERD.
- ✓ Patients with persistent GERD are at risk of Barrett's esophagus or esophageal adenocarcinoma.

Thank You!



Professor Magdy Hamed